We claim:

1. A nucleic acid delivery system comprising:
a fusion protein containing
(1) a targeting moiety, which will specifically bind to a site on a target cell, and
(2) a binding moiety which will bind to a nucleic acid segment, and
the nucleic acid segment containing a nucleic acid sequence of interest.

2. The nucleic acid delivery system of claim 1, wherein the targeting moiety is an antibody.

3. The nucleic acid delivery system of claim 2, wherein the antibody is an antibody to a viral envelope protein, a cellular receptor, or an extracellular domain of an activated receptor.

4. The nucleic acid delivery system of claim 2, wherein the antibody is a single chain antibody, a Fab portion of an antibody or a $(Fab')_2$ segment.

5. The nucleic acid delivery system of claim 1, wherein the binding moiety is a protein or the nucleic acid binding domain of a protein, and the binding moiety is fused to the carboxy portion of the targeting moiety.

6. The nucleic acid delivery system of claim 5, wherein the binding moiety is the nucleic acid binding domain of a protein selected from the group of nucleic acid binding domains present in proteins selected from the group consisting of GCN4, Fos, Jun, TFIIS, FMRI, yeast protein HX, Vigillin, Mer1,

bacterial polynucleotide phosphoylase, ribosomal protein S3, and heat shock protein.

7. The nucleic acid delivery system of claim 5, wherein the binding moiety is the protein protamine.

8. The nucleic acid delivery system of claim 1, wherein the nucleic acid sequence of interest encodes an antibody, a dominant negative mutant, an antisense RNA, ribozymes, or a cytotoxic agent.

9. The nucleic acid delivery system of claim 1, wherein the nucleic acid segment comprises flanking 5′ and 3′ long terminal repeat (LTR) regions or inverted terminal repeat (ITR) regions, a promoter operably linked to a desired gene in the nucleic acid sequence of interest.

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10. A nucleic acid delivery system comprising a fusion protein wherein one portion of the fusion protein comprises an antibody, which will selectively bind to a desired site on a cell, and the other portion of the fusion protein comprises a protamine protein capable of binding to a nucleic acid segment; and the nucleic acid segment.

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11. The nucleic acid delivery system of claim 10, wherein the nucleic acid segment is a DNA sequence corresponding to a cytotoxin gene or a fragment thereof which will encode a cytotoxic protein.

12. The nucleic acid delivery system of claim 11, wherein the nucleic acid segment encodes at least Domain III of *Pseudomonas exotoxin A*.

13. A method of transforming a target cell which comprises adding an effective amount of the nucleic

acid delivery system of claim 1 to a medium containing the target cell, and waiting until the nucleic acid sequence of the nucleic acid delivery system transforms the cell.

14. A method of preparing a nucleic acid delivery system which comprises transforming a cell with a vector containing a DNA segment which encodes the fusion protein of claim 1 operably linked to a promoter, incubating the cell, and collecting the expressed fusion protein.

15. A method of use of a nucleic acid delivery system which comprises administering an effective amount of the nucleic acid delivery system of claim 1 to serum containing a target cell, and waiting until the nucleic acid delivery system contacts the target cell.

16. A method of use of a nucleic acid delivery system which comprises administering an effective amount of the nucleic acid delivery system of claim 10 to serum containing a target cell, and waiting until the nucleic acid delivery system contacts the target cell.

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